

AVIATION

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JANUARY 28, 1924

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VOLUME
XVI

SPECIAL FEATURES

NUMBER
4

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THE SHENANDOAH WEATHERS A STORM
REGULATIONS OF CURTISS TROPHY RACE
SWANSON-FREEMAN COMMERCIAL TWO-SEATER

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EDITOR
VIRGINIA E. CLARK
EDITORIAL
EDWARD P. WARDER
EDITORIAL
RALPH H. WILSON
CONTRIBUTING EDITOR

JANUARY 28, 1924

No. 4

The Shenandoah in the Storm

THE adage of the U. S. naval sailing Shenandoah added one of the most thrilling chapters to the history of air navigation. Coming right after the disaster to the *Dreadnaught*, it was the Shenandoah's escape entirely outside noticeable means as to her safety, though experienced sailors took a cooler view of her plight than the general public. They knew that unless her hull had suffered vital damage the ship was fully capable of weathering a storm under her own power by steering out of the atmospheric disturbances. The fact enough for an hour for a 2000 mile cruise, and was well known, even though the fact was not yet known.

Events fully justified this faith, for as it told elsewhere in this issue, the Shenandoah duly returned to Lakeland under her own power after weathering the storm for nine hours, thus furnishing a remarkable proof of her seaworthiness. It should be noted that due to the pulling out of the nose up the hull was weakened at its strongest point, that the accidental failure of the two forward gas cells necessarily decreased the ship's lifting power and impaired her trim; and, finally, it is the stopping of one of the forward fins made steering in connection with poor trim even the more difficult. Considering all these handicaps, one cannot but find the highest admiration for the intrinsic qualities of the ship as well as for the skill and gallantry of her crew. Both sea and ship were worthy of the trial.

If any names should be singled out for particular mention, then naturally near the names of Comdr. Jerome C. Hanson, U. S. N., designer of the Shenandoah; Comdr. Ralph D. Moberger, U. S. N., her builder, and Capt. Anton Heinen, the experienced Zepelin commander, whose presence on board the ship was a source of considerable inspiration to the crew.

The successful outcome of the Shenandoah proved that there are valid reasons in which, rather than stick to the old, an airship should not only out and ride out the storm, but, in a ship of the sea, when her sailing begins dropping. It also proves that in this case the airship was outside a storm of it carries sufficient fuel on board. These lessons are extremely valuable in view of the proposed Arctic flight, where manning would have been the only operating base of the Shenandoah.

In this connection, and with particular reference to carrying capacity, it would seem wise if the Navy sent the replacement ship *Zeppelin* to the Pole rather than the Shenandoah. Not only is the *Zeppelin* a much bigger ship, but there is also the fact that under the terms of her purchase she cannot be used for military purposes. Hence, her use on the Arctic flight would solve the problem of her employment by the Navy, while the Shenandoah could then be used for what she was built, that is, for meeting experiments with the fleet.

General Patrick's Annual Report

THE additional and hitherto unpublished excerpts from the annual report of the Chief of Air Service which are printed in this issue are worth the most careful perusal of all those concerned with our future as an air power.

No portion of the report is perhaps more interesting than the one showing in tabulated form the amounts spent on sea land for transportation, and on the other for airplane production. Under the former head there stands a total of \$3,000,000; under the latter, approximately \$1,000,000, of which only \$350,000 was spent on new airplanes. While several million dollars are allocated in the annual Air Service appropriation for the procurement of new airplanes and engines, \$100,000 was the amount actually spent for this purpose last year out of a total appropriation of \$750,000.

This fact reveals a serious situation in the Air Service, one which General Patrick incidentally emphasizes in his report as the following item:

"While great progress has been made in the development of equipment, in the training of personnel and in the perfection of organization, it must be pointed out that these advances have in the interim analysis reached their limit. No further advancement as a whole is possible under existing conditions, and on the other hand the present critical shortage of equipment and personnel portends rather a period of retrogression."

In other words, the Army Air Service has pushed experimentation and research at the expense of production. In this manner it has developed more remarkable samples of service and training planes, yet its squadrons are mostly lacking in modern military standards. This is but a natural consequence of the tendency constantly to improve the equipment. Experimentation of this sort defers the requirements of production, for there is a very natural tendency to place any production order if the hope is entertained that it will contain a more reasonable type of plane will be available than the one just experimented with.

The figures given in the report show that in 1923, when moderate steps are taken to remedy this condition, the Air Service will have only 260 airplanes of which 182 were "war produced," whereas there will be needed 1955 if even the present requirements are not increased. It therefore becomes evident that what is most seriously needed for the next few years is to replenish the squadrons of the Air Service with production ordered airplanes.

While we are led the Chief of Air Service states, it is the prudent policy of all organizations, when time necessities are not available, to cut down overhead and expand some of this for the same necessary operating requirements.

The Shenandoah Weathers a Storm

Tom from Mooring Mast, Airship Outrides 70 mi. Gale Which Causes Havoc on Atlantic Seaboard

The U.S. Naval airship Shenandoah gave a remarkable demonstration of her seaworthiness on the night of Jan. 14-17. After being here from her mooring mast at Lakehurst naval air station by a 70 mi. gale, the ship's crew of twenty-five — who were the second command of Lt. Comdr. R. H. Davis, U.S.N., her commanding officer, and included Capt. Anton Hansen, the Zeppelin expert — fought their way back through the storm and safely landed here at Lakehurst the next morning. The wind over the ground that day had diminished to 20 mi./hr., although shift it was still blowing at some 50 mi./hr.

Force of the Storm

The force of the storm and some of its effects upon the Atlantic seaboard are graphically told in the following pages appearing in the New York World:

A southeast gale that reached 70 mi./hr. accompanied in mass, caused fire deaths and injury to twenty-two persons, raised tides with shipping and did considerable property damage in New York and vicinity yesterday. Weather Bureau officials reported it one of the worst January storms in the Atlantic zone in which records have been kept.

When this storm hit Lakehurst, the Shenandoah had been at her mooring mast for three days, being scheduled to remain there for a week, to test the proposition that she would be subjected to under varying wind forces, and to give the crew training in mooring and unmooring. The mooring mast at 122 ft. high and at the top has a steel arrangement which fits around the nose of the airship. Guy ropes run from the sides of the airship to the ground and these are attached to wheels running around a circular track. Thus the Shenandoah can swing in the wind as much as a ship at anchor swings with the tide.

When the airship wishes to make fast, it can move down the ground and drop a cable from the davitport. This is pulled up by the ground crew and fastened to a bar running down from the top of the mast. A special power hook then takes up the cable and draws the mast gradually down to the mark when the cable is locked in the ground.

When the storm struck Lakehurst, the Shenandoah was holding her own at the mast, riding easily, though the cable then to 50 mi./hr. by 6:30. There was a sudden shift in the wind and the ship was blown off the mast. The crew on board, but where the wind did not show any signs of abating, Comdr. Frank R. McCarty, U.S.N., commander of the Shenandoah, decided to put a regular crew of twenty-five on board for all emergencies. This crew consisted of Lt. Comdr. M. G. Davis, commanding officer, in command; Lieut. J. L. Davis, E. H. Kinnard and R. G. Mayer; Radio Officer J. L. Robertson, Capt. Anton Hansen, technical advisor to Navy Department, and Lt. Comdr. W. C. Dargatzis, Harbor of Annapolis, and four enlisted men of Naval Aviation and four N.C.O.'s of the Army Air Service.

The Nose Cap Pulls Out

Two minutes after the crew had gone on board, there was a loud report, and the Shenandoah parted her mooring, and drifted off into the night. It appears that a particularly ferocious blast first tore out the fabric from the upper vertical fin and next pulled her heavy bulk upward, and a number of ropes were torn down. The result was a building stress beyond the strength of her moorings. The metal nose cap was stripped away, leaving with it a section of her outer covering, and damaging her two forward engines, killed with helium gas, which were deflated as a result.

Owing to the momentary loss of lift forward, the Shenandoah drifted across the field with her nose down, until Capt. Hansen, fortunately, perceived the situation, pulled the balloon valve down, jettisoning some 4000 lb. of water ballast.

Even so, due to the speed of the wind, the ship hardly cleared the time at the end of the field and three ground tanks, each of 115 gal. capacity, had to be jettisoned before she rose to a safe height.

The sections—which had been warmed up every half hour at the mast—were then stored and the Shenandoah, now being well under control despite the handicap of her deflated gas cells, began raising below the storm.

In the confusion, ground moorings were unfastened on the ground for her safety. Her radio was demonstrated when the weather cleared and it took no time to put it at work as usual. Finally, at 9:30 p. m. Island Field pointed up the following message from the Shenandoah: "Call U.S.N. 1761 role out again. Track us over New Brunswick. Holding our own. Verify position and send a weather information."—Pawnee.

The radio stations properly equipped by shipping all broadcasting and by adding all radio equipment to be on the lookout for the ship and to report her position.

The ship was then over Newark, circling around in its wind and was spread their faces. Governor's Island sent up rockets to guide her, and all available searchlights in New York City were playing against the sky. When the weather cleared, the Shenandoah fought her way back to Lakehurst, where she arrived at 5:20 a. m. Thursday. Good luck, according to the morning mail, showed the field, where a ground crew of 400 men was in readiness. At 8:24 the ship was safely housed in her hangar.

None of the crew was injured.

Captain Hansen's Account

Captain Hansen told the story of this incredible cruise to a newspaper as follows:—



(U.S. Government Bureau)
 Nose and main section—Nose of the Shenandoah showing where the mooring cap pulled out and sections of the outer cover stripped by the storm.

January 26, 1924

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"I do not believe," he said, "any other ship in which I have sailed would have successfully gone through the gale she did."

"We had the ship under perfect control within five minutes after the nose cap was torn off. We were 300 feet and ascending flying at that elevation until we were near Shenandoah, N. J., when we went up about 1500 ft."

"Flying conditions were unfavorable, as it was raining hard. However, we were not afraid. We took the ship down and we landed we had reached the port side of the mast."

"We landed out over Staten Island and then went to Ford's Harbor. From there we drifted somewhat by a point over Ryeport and then across the ship into the wind again and reached Fresh Pond. From there to Lakehurst we rode with the wind."

The Official Statement

The Navy Department made public the following statement:

"The midnight flight of the Shenandoah has demonstrated that the Navy Department has always believed. First, that the mooring facilities are adequate in most normal weather; second, that as long as she is handled and positioned she is safe in her natural element, the air."

"As soon as we learned that her engine was burning over we had lost some 400 ft. altitude. As far as we know, the ship was in the air, the engine was running, and she was flying at a mooring mast. We have records of rapid sliding out."

Regulations of the Curtiss Trophy Race

The year's Curtiss Marine Flying Trophy Race, (for high speed airplanes) will be held March 3, next, at Miami, Fla., under the auspices of the Navy Department.

Preliminary Events

For March 7, the first day of the meet, two events are scheduled.

The first of these is the Miami Chamber of Commerce Cup race, a free for all event for privately owned airplanes built by 1923 or more passengers. The race will be run over a triangular course of 25 km. each, making a total distance of 100 km. (51.2 mi.). The Cup will become permanent possession of the winner, who will receive a prize of \$1000. Second prize is \$500, third prize \$250, fourth prize \$150.

The second event of the day will be a landing contest for the Royal Palm Boasting Trophy, donated by the Royal Palm Hotel of Miami.

The contest is open to airplanes and aeroplanes. No pilot may complete unless entry has been made prior to the day of the contest. Each pilot is limited to one attempt consisting of three "bombs" which must be released during a single flight.

Bombs must be painted white, and may be constructed of any material which will sink immediately on striking the water without deformation — weight not to exceed 10 lb. The bombs will be furnished by each pilot. No other may be used than one given.

The target will be anchored at a point to be selected by the Contest Committee. The pilot who comes nearest to making a dent in it will be declared the winner. Two other pilots will be awarded the places second and third.

In case of a tie — the winner shall be selected in a match contest arranged by the Contest Committee.

Airplanes and aeroplanes will be started in two groups. The starting signal will be given to each group of contestants at 30 second intervals. Flares will line up for start in the order of the receipt of entries.

The starting signal will be given during four minutes over the target at an altitude of not less than 1500 ft.

Event No. 3, on March 8, is a Handicap Race open to Navy airplanes and flying boats. It will be completed for

twenty miles and even more. The Shenandoah held the record for speed and altitude, and velocity; then she took the prize as easily as a ship takes her sails in a harbor and was able to sail to the end of the race. The demonstration of the ship's seaworthiness has been most striking and the demonstration of the skill and ability of her officers and men is less pleasing.

"From all our information, it may be asserted with positive assurance that there is hardly a possibility that this ship will encounter any other serious difficulty, say bad as severe as that she has already met successfully."

The Secretary of the Navy congratulated the officers and men on board the Shenandoah in the following language:— "The Department commends most highly Lieutenant Commander Davis, the officers and men of the Shenandoah, and also Messrs. Hansen and Bergman, for their conduct and gallantry in the face of the most severe weather."

The most telling commentary on the seaworthiness of the Shenandoah was probably that made by Dr. Dargatzis, of the Naval Bureau of Aeronautics, who said:

"Had you ever heard of a steamship going to sea in a gale of 70 mi./hr. with its bow partly bare and two-thirds of the steering gear out of operation? It is inconceivable how the Shenandoah has weathered this storm. The ship, however, will continue to set the standards for seaworthiness."

The Flamingo Handicap Cup, donated by the Hotel Flamingo of Miami. The cup will become the permanent possession of the pilot who wins the race.

Three finishing places, third and fourth will receive other cups.

The handicap for each airplane or flying boat will be calculated on the basis of its speed on a standard type as listed in official performance or acceptance test reports filed with the Naval Bureau of Aeronautics.

The plane must be equipped with standard make and type engine and propeller, and acceptance test, with no stroke and compression ratio modified. Standard wing area and section must be used without structural changes. All other forms of structural changes are prohibited.

Curtiss Navy Boasting Cup race, if entered, will be handicapped in accordance with their respective speeds in this event, provided motor, wing surface and area on the wings and on the fuselage are not changed. The race also applies to other racing planes which have a speed mark established in an official race.

The race will be run over a distance of 200 km. (124.27 mi.), in eight laps of a closed triangular course of 25 km.

The start will be made from "at rest" position with engine running. (Starting line may be at any corner in shallow curve, and will be described by a flag.) The starting signal will be given by a flag. The starting signal will be given by a flag. The starting signal will be given by a flag.

Curtiss Marine Trophy Race

This, the chief event of the Miami Spring meet, is for the six new high speed airplanes over a triangular course of 25 km., which the contestants will cover eight times, making a total distance of 200 km. (124.27 mi.).

Extensive measures have been taken to insure safety (wing surface) of six, as before, 200 mi., and have an air speed greater than 300 mi./hr.

In addition to the trophy, the winner will receive a cash prize of \$10,000. The second place winner will receive cash prize of \$500 and \$2000 respectively.

The start will be made from "at rest" position with engine running. The starting signal will be given to the

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